

This lesson is part of a larger, comprehensive school garden guide called **Minnesota School Gardens: A Guide to Gardening and Plant Science** developed by Minnesota Agriculture in the Classroom in 2013. The entire guide is available at www.mda.state.mn.us/maitc.



Grade

Middle School

Materials/Preparation

- ☐ Teacher Material A – Mind Map Example – one per teacher
- ☐ Assessment A – Importance of Plants – one per student
- ☐ Computer
- ☐ Poster paper
- ☐ Notebook paper
- ☐ Magazines
- ☐ Scissors
- ☐ Glue
- ☐ Writing Utensils
- ☐ Markers
- ☐ Food for Thought Desk Map*

*The Food for Thought Desk Map is available online at www.mda.state.mn.us/Global/MDADocs/kids/food4thought/deskmap11x17.aspx. Printed maps can be ordered from Minnesota Agriculture in the Classroom.

Fun Fact

Carrots have a higher natural sugar content than all other vegetables with the exception of beets.



Importance of Plants

Minnesota K-12 Academic Standards

Science	7.4.3.2	Individual organisms with certain traits in particular environments are more likely than others to survive and have offspring.
Social Studies	5.3.1.3	Places have physical characteristics (such as climate, topography and vegetation) and human characteristics (such as culture, population, political and economic systems).
Social Studies	7.3.1.1 8.3.1.1	People use geographic representations and geospatial technologies to acquire, process and report information within a spatial context.

Summary/Overview

Students learn about the importance of plants and create a mind map to display the ways in which plants influence their lives. Next they use a thematic map to help understand why crops grow in specific areas of the state.

Garden Connection

Students explore some factors that influence plant growth.

Background Information

Plants impact our daily lives. Students may not realize how many products they use contain plants. This lesson opens their eyes to the importance of plants. In order to effectively grow the plants we use so often, it is helpful to know what influences plant growth. Landforms, annual precipitation, annual frost-free days, and native vegetation all play a role in where farmers and gardeners choose to grow certain crops in Minnesota. Students review maps of these factors and compare them to maps showing growing areas of four major crops.



Objectives

- List five ways humans use plants.
- Explain factors that influence crop production.
- Identify important crops grown in Minnesota.
- Analyze why crops are grown in specific areas of Minnesota.

Procedure

Interest Approach

As students enter the room, have them write one way they have used plants during the day on the board. After everyone has shared, review the answers as a class. Ask how the answers might be categorized. As a class, develop categories. Examples: food, fiber, building materials, oxygen, medicine, beauty, and economic value. Help students think of any areas that might be missing.

Summary of Content and Teaching Strategies

Plant Uses

On notebook paper, instruct students to create the outline of a mind map for the importance of plants. See Teacher Material A for a sample outline. Use categories developed by the class or example categories.



Divide the class into groups assigning each group a plant use category. Each group makes a poster with a list of plants and plant materials that belong in their category. Next groups should add pictures or magazine clippings illustrating items found in their category. Students may need to research their topic using a computer. Have each group share their findings with the class. Students note the findings on their mind maps.

Sources/Credits

This lesson was developed for the Minnesota Garden Guide.

Factors Influencing Growth

Understanding factors that influence plant growth is critical for a successful harvest. Ask students to brainstorm a list of things they think affect plant growth. Be sure they include landforms, annual precipitation, annual frost-free days, and native vegetation on their lists. Discuss how different plants require different kinds of growing conditions to thrive.

Utilize Minnesota Agriculture in the Classroom's (MAITC) Food for Thought maps and curriculum to investigate Minnesota's plant growth factors.

Plants in Minnesota

Next ask students to name and list important agricultural crops grown in Minnesota. For each crop, ask students to develop a hypothesis as to why these crops grow in each particular area of Minnesota.

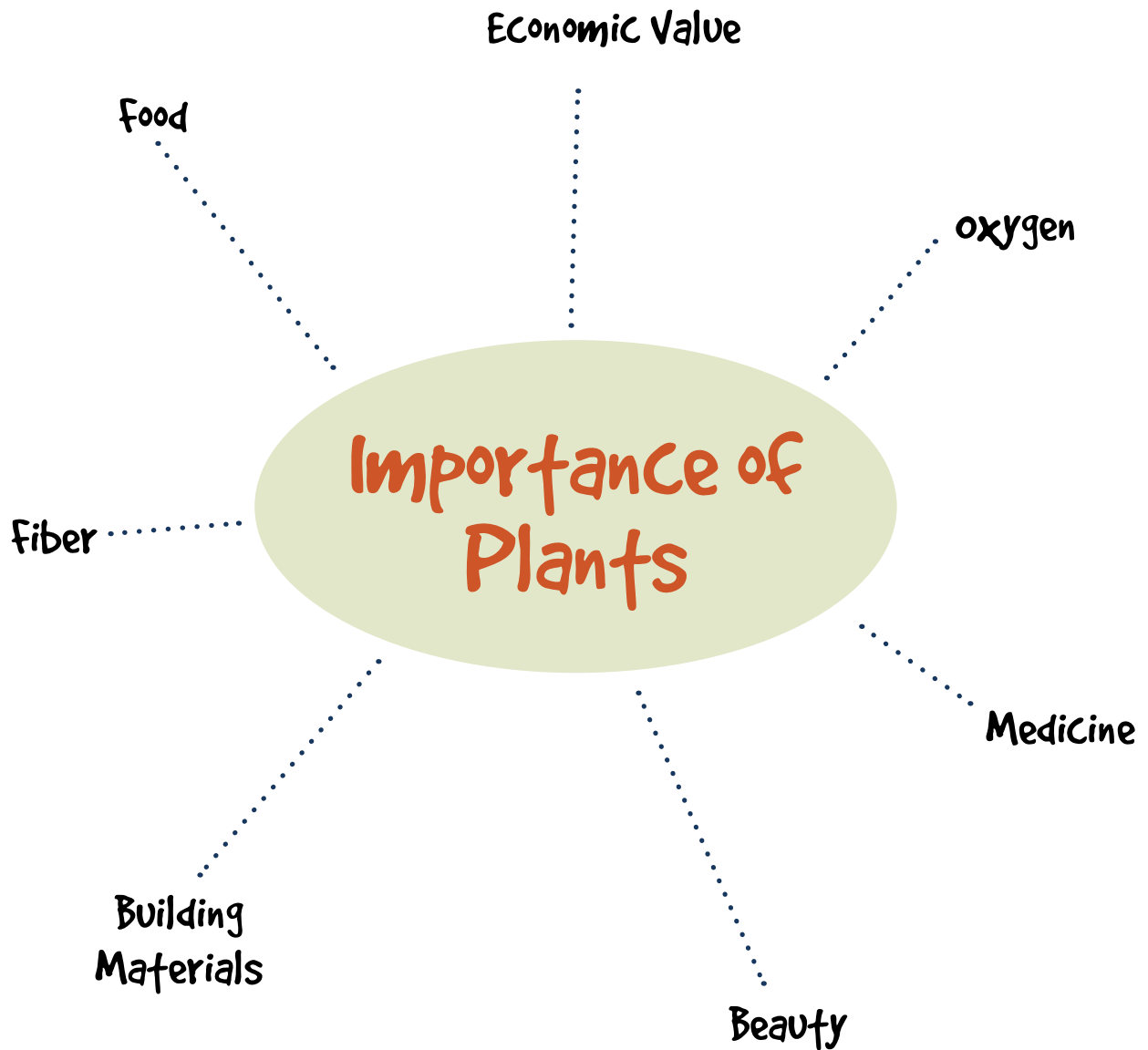
Again consult MAITC's Food for Thought maps and curriculum to discover Minnesota plant growth locations and conditions.

Review/Summary

Ask students to name three uses of plants they learned about during the lesson. Discuss the hypotheses they developed while looking at the maps of Minnesota.

Modifications/Extensions

Utilize lessons from the Food for Thought Mapping Curriculum *Connecting Minnesota Geography, Agriculture and Communities* available from Minnesota Agriculture in the Classroom. www.mda.state.mn.us/kids/food4thought.aspx



Name _____



Importance of Plants

1. List five ways humans use plants.

2. Name two factors that influence crop production.

3. Identify two important crops grown in Minnesota.

4. Explain why some crops are grown in northern Minnesota and others are grown in southern Minnesota.
